Patent Claims

1. A method for analysis of a target nucleic acid consisting of repetitive and non repetitive sequences comprising:

a) hybridizing the target nucleic acid with at least one polynucleotide hybridization probe comprising a first segment which is complementary to a non repetitive region and a second segment which is complementary to an adjacent repetitive region, said second segment consisting of a defined number of repeats; and

b) determining the melting point temperature of the hybrid which has been formed between the target nucleic acid and the at least one hybridization probe,wherein the melting point temperature is correlated with the number of repeats present in the target nucleic acid.

2. A method for analysis of a target nucleic acid in a sample said target nucleic acid consisting of repetitive and non repetitive sequences comprising:

a) hybridizing the target nucleic acid in the sample with at least one polynucleotide hybridzation probe comprising a first segment which is complementary to a non repetitive region and a second segment which is compementary to an adjacent repetitive region, said second segment consisting of a defined number of repeats;

b) hybridizing the same polynucleotide hybridization probe as in step a) with a target nucleic acid in a reference sample;

c) determining the melting point temperature of the hybrids which have been formed between the target nucleic acid and the at least one hybridization probe in both the sample and the reference sample; and

d) determining the difference between the two melting point temperatures as a measure for the difference in repeat numbers between the target nucleic acids in the sample and the reference samples.

3. The method according to claim 1 or 2, wherein the target nucleic acid is amplified prior to hybridization.

4. The method according to claim 3, wherein the at least one hybridization probe is labeled and the label is preferably a fluorophore.

5. The method according to claim 4, wherein hybridization is performed with two adjacently hybridizing probes each labeled with a different fluorophor, such that Flourescence Resonance Energy Transfer can take place, when both probes are hybridized to the target nucleic acid.

6. The method according to claim 5, wherein the fluorophor of the probe comprising a non repetitive region and a second segment which is complementary to an adjacent repetitive region is attached at the non repetitive region of the probe.

7. A polynucleotide hybridization probe, comprising a first segment which is complementary to a non repetitive region and a second segment which is complementary to an adjacent repetitive region, said second part consisting of a defined number of repeats.

8. A hybridization probe accoding to claim 7, wherein the number of repeats is identical to the number of repeats in the wild type of the target sequence or identical to the maximum number of repeats occuring at a certain repeat locus.

9. A hybridization probe according to claim 8, wherein the non repetitive segment has a length of 3-10 nucleotides.

10. A hybridization probe according to claim 8, wherein the non repetitive segment has a length of 4-6 nucleotides

11. A pair of FRET hybridization probes, wherein the the first probe hybridizes to a non repetitive region and the second probe is a probe according to any of claims 7-10.

12. A pair of FRET hybridization probes according to claim 11, wherein the label of the second probe is attached at the non repetititve region of the probe.

13. A polynucleotide hybridization probe having a sequence according to SEQ. ID. NO: 4 or SEQ. ID. NO: 7.